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RIVISTA DI FILOLOGIA  
E ANTICHITÀ EGEE

RIVISTA ANNUALE · A YEARLY JOURNAL

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# PASIPHAE

RIVISTA DI FILOLOGIA  
E ANTICHITÀ EGEE

VI

(2012)



PISA · ROMA  
FABRIZIO SERRA EDITORE  
MMXII

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Autorizzazione del Tribunale di Pisa n. 30 del 28 dicembre 2001  
Direttore responsabile: Lucia Corsi

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ISSN 1974-0565  
ISSN ELETTRONICO 2037-738X

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# WOOL-SPINNING, BRONZE-WORKING AND THE PECULIARITIES OF MYCENAEAN TA-RA-SI-JA

BARBARA MONTECCHI\*

## 1. TA-RA-SI-JA: STATUS QUAESTIONIS

It is by now well-established that the hypothesis that the Mycenaean term *ta-ra-si-ja* / *tala(n)-siā*/ indicates a production directly organized by the central administration for the supply of a certain quantity of raw materials weighed (wool and bronze)<sup>1</sup> to be processed into finished products which would then be returned to the Palace.<sup>2</sup>

The term is attested in Pylos, Knossos and Mycenae, in reference to the textile production (KN Lc 535.A, 536.A, Le 642.1, X 8211; MY Oe 110.1; PY La 1393.1),<sup>3</sup> the bronze-working (in the Jn series of Pylos, except Jn 829 and 881+829)<sup>4</sup> and the production of chariot wheels (KN So(2) 4442.b). It does not appear in Thebes, but the wool distribution of the Of series seems to reflect a system of textile production based on household and shrine units, supplied and controlled in a similar way to those employed in the *ta-ra-si-ja* in the kingdoms of Knossos, Pylos and Mycenae.<sup>5</sup>

The central administration also ran an important production of perfumes, which provided for the supply of raw materials to the craftsmen, but the term *ta-ra-si-ja* never appears in these records.<sup>6</sup> Hence J. Killen deduced the existence of a production system which, although managed and supplied by the Palace, would have been opposed to that of the *ta-ra-si-ja* and defined it “non-*ta-ra-si-ja* production”.<sup>7</sup>

This conclusion is, in my view, questionable. The term *ta-ra-si-ja*, from the root \**tla-* of the verbs ‘bear’ and ‘weigh’, from which also derived the word *τάλαντον*, makes a likely reference to the weight control which the distributed raw materials and the required finished products had to be submitted to. Deliveries of oil and spices were not associated with the term, as oil and spices were not weighed but measured. It is, therefore, the very nature of the products which renders the term *ta-ra-si-ja* appropriate for wool and bronze but not for oil and spices. I find that the use of the expression “non-*ta-ra-si-ja* production” to indicate the perfume industry is not very effective, because in the Mycenaean texts only the smiths were sometimes defined *a-ta-ra-si-jo* / *atala(n)sioi*/ ‘without *ta-ra-si-ja*’.

After the comparative analysis of the documents concerning, firstly, the production of textile, chariot wheels and bronze-working, and, secondly, the manufacture of unguents, Killen concludes that the *ta-ra-si-ja* production would have involved: a) an extremely large workforce,

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<sup>1</sup> It is uncertain whether the ideogram AES and the term *ka-ko* (hence the craft name *ka-ke-u* ‘smith’), used in Linear B both in relation to raw material and in relation to finished product, indicate copper or bronze or, like in alphabetic Greek *χαλκός*, both (Michailidou 2008). In this paper we use the term ‘bronze’ in the awareness of such uncertainty.

<sup>2</sup> Lejeune 1961, p. 419; *Docs*<sup>2</sup>, pp. 252 and 583; Duhoux 1976, pp. 69-115; Killen 2001; Nosch 2000 and Nosch 2006. Different is the opinion of Gallavotti 1956, pp. 176-177, and of Pugliese Carratelli 1963, pp. 245-246, re-taken in recent years by Gillis 1997, pp. 509-513, according to whom *ta-ra-si-ja* would have been the name of a tribute that certain craftsmen were required to pay.

<sup>3</sup> In PY La 1393.1 we can integrate *de-ka-[s]a-to*, *a-ri-wo*, *ta-ra-[si-ja]* (Duhoux 1976, p. 70). For the similarities with KN Le 641 and 642 which suggest that also at Pylos the textile industry was organized according to the production system of *ta-ra-si-ja*, see Killen 1985, pp. 49-51.

<sup>4</sup> The tablets of the Jn series are, in principle, well-preserved and are a very homogeneous group: originally stored in the Archives Complex of the Palace of Pylos (rooms 7 and 8), they are all works of the same scribe (H2) except Jn 658 and 706, written by H21 (Smith 1992-1993, pp. 171-178). The separation of the Jn tablets 829 and 881+829, recording collection of bronze, from the others of the series, which record allocations of bronze according to *ta-ra-si-ja* and smiths *a-ta-ra-si-jo*, is already present in Ruipérez 1963, in particular at p. 49.

<sup>5</sup> Cf. Nosch 2008a, pp. 193-194 and 202.

<sup>6</sup> For the industry of scented oils, see Shelmerdine 1985, Jasink 1990-1991 and Speciale 2001.

<sup>7</sup> Killen 2001, in particular p. 175.

of relatively low social status and located out of the administration centre; b) intermediaries between the Palace and the workforce; c) very small amounts of raw material, weighed, recorded and allocated to each of the many workers, which had to be returned to the Palace in the form of an appropriate quantity of finished product.

Instead, perfumed oil production would have provided for: a) relatively few workers of relatively high status, in other words master-craftsmen, located at the administration centre (neither at Pylos nor at Knossos do any of the records which relate to this activity contain a place-name); b) a direct relationship between the Palace and the masters, without intermediaries; c) issues of relatively large quantities of raw materials.

The study by Killen is indeed very accurate and his reconstruction enjoys today broad support. However, it seems to me that the considerations related to the social status of the workers should be in part revised. Firstly, it is important to remind that the notions of independent, dependent and slave labour are very unclear on the whole and especially as regards the real differences between the last two terms.<sup>8</sup> Secondly, the textual evidence that we will analyse below does not support the idea that the workers bound to the *ta-ra-si-ja* were completely dependent to the Palace, or that their social status was lower than that of other groups of artisans, especially those involved in the perfume industry.

## 2. ECONOMIC RANGE OF THE *TA-RA-SI-JA*

We start from the observation that the *ta-ra-si-ja* system of production involved a large number of persons who were given small amounts of raw materials.

Given the partiality and incompleteness of the records we hold, from the sum of the individual allocations of the Jn series derives a minimum total of ca. 576 M of bronze, but M. Lejeune had already well-argued the opportunity to understand the total recorded on PY Ja 749 (*to-so-pa* L 34 M 26) as the total bronze distributed from the Palace to the smiths.<sup>9</sup> This total amounts to L 34 M 26, i.e. M 1,046, which, with L = 31.329 kg, corresponds to 1,092 kg.<sup>10</sup> The smiths recorded in the Jn series as having *ta-ra-si-ja* are a total of ca. 185<sup>11</sup> and receive an average of 3.5 kg of bronze per head, with minimal allocations of M1 N1, i.e. 1.56 kg, and a maximum of M 12, i.e. 12.48 kg, sufficient quantities for a few days work.<sup>12</sup> The fact that a significant number of people were provided with small quantities of raw materials means that the centrally administered production of weapons, which was probably destined to the bronze of the Jn series, was extensive in nature.

As to the wool, we do not have totals of the raw material distributed, but we can have a rough idea of the economic scale of the textile production controlled by the Palace of Knossos on the basis of the tablet KN Lc(1) 536, which records 267+200+48+1+48 units of cloths required according to *ta-ra-si-ja*, and thanks to the M.-L. Nosch's calculations. Nosch estimates a total of 3,444 units of wool,<sup>13</sup> corresponding to 10,786.608 kg (with WOOL = 3.132 kg<sup>14</sup>), which was the product of ca. 13,776 sheep (with a ratio of units of wool and sheep of 1:4). It is also difficult to assess the numerical strength of the weavers employed in the *ta-ra-si-ja* production as they are mentioned as working groups. Based on the records of the series KN Ak and PY Aa and Ab, they have been estimated at ca. 1,000 in Knossos and 750 in Pylos.<sup>15</sup> In any case, it seems that they were used in the production of limited quantities of garments.<sup>16</sup>

<sup>8</sup> Tournavitou 1997.

<sup>9</sup> Lejeune 1961, p. 433. Some scholars, however, remain skeptical of the connection between the bronze allocations recorded on the page shaped tablets of the Jn series and the total inscribed on the palm leaf shaped tablet Ja 749, because Ja 749 has no ideograms (Smith 1992-1993, pp. 171-172, n. 4).

<sup>10</sup> This is the absolute value assigned to L in Parise 1994, in particular p. 302; lower are the values proposed in Petruso 1992, p. 60 (28.9 kg) and in De Fidio 1998-1999, in particular p. 61 (28.188 kg).

<sup>11</sup> If the personal names recurring in more tablets refer always to the same persons (Nosch 2006, p. 163).

<sup>12</sup> Lejeune 1961, pp. 433-434. In *Docs*<sup>2</sup>, 356 it is estimated that 1.5 kg of bronze was sufficient for 1,000 arrowheads and 5 kg for 14 swords or spears; in Michailidou 2001, p. 95, 5 kg of copper (!) were considered sufficient for 10 axes or more than 14 daggers.

<sup>13</sup> Nosch 2006, pp. 163 and 174.

<sup>14</sup> Parise 1994, p. 302.

<sup>15</sup> Killen 2001, p. 172.

<sup>16</sup> Killen 2001, p. 172, Nosch 2000, in particular pp. 46-52, Nosch 2006, p. 163.

Even in the textile industry, therefore, many persons were employed, each of whom produced for the Palace limited quantities of finished products, but the sum of which turns out to be quite substantial, at least in relation to the technological level and the territorial extent which this production is attributable to.

### 3. MANAGEMENT OF TEXTILE AND METAL PRODUCTION COMPARED

On the social status of the workers involved in the *ta-ra-si-ja*, the sharp differences between the records of cloths and wool, on one hand, and bronze, on the other, and the same ambiguity of the obtained data<sup>17</sup> suggest to desist from the attempt to reconstruct a unified framework, valid both for the smiths of Pylos and for the weavers of Knossos: the similarities between the two categories, in fact, stop, for now, at the collection of raw materials to be processed.

Bronze assignments are attested only in the archive of Pylos<sup>18</sup> and, as noted by Carlier: “Il n’en demeure pas moins que les forgerons ne travaillent pas à plein temps pour le palais: la ‘corvée’ qui leur est imposée ne représente qu’une petite partie de leurs activités”.<sup>19</sup> The location in peripheral villages, the absence of smiths both in records of land and rations, the exemptions of taxes in the series Ma and Na (though not systematic, see also Nn 831.11) and at least one case of payment (MY Oe 121.2),<sup>20</sup> in addition to the attestations of *ka-ke-we a-ta-ra-si-jo*, are indications of only a partial dependency of the smiths on the Palace, that is of the greater autonomy they enjoyed compared to other categories of workers and officials present in the palatial records.<sup>21</sup> Because they are present in tablets recording contributions of flax (PY Na series), they should own lands. It has even been suggested that those *a-ta-ra-si-jo* were temporarily employed in agricultural activities.<sup>22</sup> With regard to the social level of the smiths, documentation is lacking. Although the team in high numbers is inclined to deem it low,<sup>23</sup> some data can be collected in favour of a medium-high level:<sup>24</sup> 1) the working autonomy in village communities, 2) the possession of slaves and 3) the title *e-re-u-te[-re]* ‘inspector’ (dat. sg.) possibly associated to *ka-ke-we* in PY Xn 1357.3 (although there may be other restitutions, for example, the verb form *e-re-u-te[-ro-se]* / *eleutherōse* / ‘he freed, he relieved’).

Let us now dwell briefly on the adjective *a-ta-ra-si-jo* / *atala(n)sioi* /, which is attested solely by reference to the smiths and only in the Pylos Jn series. The *a-ta-ra-si-jo* smiths are recorded in almost all the tablets of the series, in clear opposition to the *ka-ke-we ta-ra-si-ja e-ko-te* and never get bronze allocations. The only bronze tablet that records *a-ta-ra-si-jo* smiths, but not *ta-ra-si-ja* allocations of bronze, is Jn 832; the opposite happens on Jn 725. The smiths, then, when they worked according to *ta-ra-si-ja*, received the bronze needed for the production of objects (possibly weapons), but, when they were *a-ta-ra-si-jo*, were not supplied nor presumably required to deliver finished products without payment.<sup>25</sup> Moreover we must take into account that we have no evidence that the Palace had a monopoly on the metal market. Accordingly, the smiths could have been supplying raw material even on their own.<sup>26</sup> Interestingly, then, the same smiths are sometimes recorded under *ta-ra-si-ja*, other times as *a-ta-ra-si-jo* (for example *a-tu-ko*, who receives bronze according to *ta-ra-si-ja* on Jn 658.10 and on 725.7, but is counted as *a-ta-ra-si-jo* on

<sup>17</sup> Cf. Killen 2001, p. 175: “the evidence is far from unambiguous”.

<sup>18</sup> Outside Pylos, the term *ka-ke-u* / *ka-ke-we* / *ka-ke-wi* is attested in only two tablets from Knossos (KN V 958.3a and Fh 386) and in one from Mycenae (MY Oe 121.2). For the recordings of smiths see De Fidio 1989, Smith 1992-1993, Gillis 1997 and Gregersen 1997, pp. 401-402.

<sup>19</sup> Carlier 1987, p. 270. See also Smith 1992-1993, p. 180.

<sup>20</sup> In MY Oe 121.2 two wool units are associated to a *ka-ke-wi* / *khalkēwi* / dative singular of *χαλκεύς* ‘smith’. The oil supplied to the smiths in KN Fh 386 could instead be explained as working material, used for the production of bellows for the forge (Rougemont 2008, pp. 683-686).

<sup>21</sup> See Gillis 1997, in particular at pp. 512-513, from whom we deviate, however, as regards the interpretation of the term *ta-ra-si-ja*.

<sup>22</sup> Cf. Killen 2006, pp. 96-98 and Uchitel 1990-1991, pp. 201-202. It is also assumed that smiths received parcels of land as a reward for their work (Killen 2008a, p. 177, n. 43).

<sup>23</sup> For example Killen 2001, p. 173.

<sup>24</sup> Same for Gillis 1997, p. 513.

<sup>25</sup> Cf. Smith 1992-1993, p. 179.

<sup>26</sup> Gillis 1997, pp. 510-511. See also Nosch 2006, p. 171. Evidence of bronze-working, on a lower scale, has been identified in the small site of Katsimigas near Iklaina (Cosmopoulos 2006, in particular at p. 221).

927.3). This means that the two conditions were not permanent, but temporary. The Palace did not have smiths employed constantly and regularly in the system of production of the *ta-ra-si-ja*, but rather the kingdom's smiths were periodically forced to perform *corvées*. The fact that the same people appear in the two categories of *ta-ra-si-ja e-ko-te* and of *a-ta-ra-si-jo* and the clear distinction of the *a-ta-ra-si-jo* from the *do-e-ro* /doheloi/ 'slaves' (gr. δούλοι), on Jn 310, 605 and 706, shows that the smiths *a-ta-ra-si-jo* were of free social status.

It is not inconsistent with those findings, nor does it demonstrate that the work of the smiths was associated with "collectors", the list written on Jn 431.22-26, where ca. 7 smiths *a-ta-ra-si-jo* are followed by a registration, then removed, of 47 men divided into groups referred to only by the ideogram VIR and associated to genitive personal names.<sup>27</sup> In my opinion, they refer to staff of servile status – property of the individuals designated by the genitive personal names – and not to smiths *a-ta-ra-si-jo*.<sup>28</sup> On the other hand, the *qa-si-re-we* (in the singular *qa-si-re-u* /g<sup>w</sup>asilēwīā/, gr. βασιλεύς), recorded on three tablets, Jn 431.6, 601.8 and 845.7, seem to supervise the delivery of metal in the "Hither Province" rather than representing the heads of teams of workers with tasks comparable to those of the heads of the weaver groups.<sup>29</sup> The work of those responsible for deliveries can be well explained if, as the tablet Jn 725 seems to indicate, the Palace allocated a fixed amount of bronze to a village, not to an individual smith.<sup>30</sup> On Jn 725 we have three lists of smiths compiled by location, followed by the total bronze allocated. This text arrangement is unusual, as the *ta-ra-si-ja* bronze allotments are usually recorded with the name of a smith followed by the received quantity.

Although the case of *pa-qa-si-jo*, smith on Jn 310.7 and on 832.10, *qa-si-re-u* on 601.8, may be due to a promotion, this is not enough to demonstrate that the *qa-si-re-we* were responsible for the work of smiths, rather than responsible for the delivery of raw material and finished products.

Furthermore, the smiths are never attested in relation to the term *qa-si-re-wi-ja* (/g<sup>w</sup>asilēwīā/, gr. βασιλεία), broadly indicating the personnel at the service of the *qa-si-re-u* or a team of craftsmen somehow linked to a *qa-si-re-u*.<sup>31</sup> The *qa-si-re-wi-ja* is connected to the production of metal vessels \*202<sup>VAS</sup> (KN (1) 875.1-6) and stools \*169 (PY Pa 398 and 889) and to unskilled workers (cf. KN As 1516.12.20), who were maintained through rations of HORD (cf. PY Fn 50.1-3). On PY Jn 431.6, the *qa-si-re-u a-pi-qa-ta* is mentioned along with his son ]i-\*65-qe (*i-ju-qe*, υἱός τε), as is the smith *wa-ti-ko-ro* on PY Jn 725.8.

This gives rise to two divergent hypotheses: 1) in the absence of the *qa-si-re-u*, a smith could be responsible for monitoring the distribution of the bronze;<sup>32</sup> 2) the *qa-si-re-we* and any of their children were employed themselves by the metalworking. The latter hypothesis would pave the way for a further possibility, namely that the *qa-si-re-wi-ja* was a specialized working group, composed, and not only managed, by *qa-si-re-we*. However, on KN As 1516.12.20, the term *qa-si-re-wi-ja* appears in parallel position to that of the term *ra-wa-ke-ja*, which, if emended in *ra-wa-ke-<si->ja*, could indicate a working team linked to the *ra-wa-ke-ta*, but surely not an équipe made up of *ra-wa-ke-ta*'s, since the \*λαφαγέτας was a high ranking official.

Finally, recalling the Mycenaean administrative practice of separating, on one hand, collector from non-collector records, and, on the other, *Potnia* from non-*Potnia* records,<sup>33</sup> the fact that both groups could be qualified by the adjective *po-ti-ni-ja-we-jo* (belonging to *Potnia*), attested in relation to a perfumer (PY Un 249.1), to smiths *ta-ra-si-ja e-ko-te* (Jn 310.14, 431.16), and perhaps even to *a-ta-ra-si-jo* smiths (Jn 310.17), would suggest that smiths and perfumers enjoyed the same social status.

<sup>27</sup> Smith 1992-1993, p. 228, nos. 167 and 168.

<sup>28</sup> *Contra* De Fidio 1989, p. 23. The function of the adjective ]*nu-we-jo* remains doubtful. It is a *hapax* which precedes the allocations of bronze in Jn 725.14 and that in Killen 1995, pp. 214-215 is interpreted as possessive adjective indicating the owner or the palatial intermediary. Cautious reflections in *DMic. I s.v.* and Rougemont 2009, pp. 432-435.

<sup>29</sup> Smith 1992-1993, pp. 190-191. According to Carlier 1995, p. 263 the *qa-si-re-we* were put in charge by the Palace of certain controls and requisitions, but they were never palace officials.

<sup>30</sup> A. Uchitel observs: "the number of smiths was irrelevant to the total amount of bronze for distribution. It should be understood that the palace allocated a fixed amount of bronze to a village and not to an individual smith" (Uchitel 1990-1991, p. 199).

<sup>31</sup> Killen 1987, p. 62.

<sup>32</sup> Carlier 1999, p. 190.

<sup>33</sup> Nosch 2008b.

Let us dwell now on the tablet Jn 725 with the four lists of smiths, which we have mentioned above regarding the role of the *basileis*.

From lines 1-10, 26 smiths are recorded in the village of *e-ni-pa-te-u*,<sup>34</sup> who receive bronze for a total of L 2 M 18, i.e. M 78. On the *ta-ra-si-ja* records, smiths from the same location can receive unequal amounts, but the structure of the record shows that, in this case, all the smiths receive the same treatment, i.e. M 3, equivalent to 3,12 kg. Thirteen of them also receive bronze (M 5) on Jn 658. Tablets Jn 658.2-10 and 725.2-8 certainly record transactions that take place in two different occasions for the following reasons: 1) they are written by different scribes, 2) not all names are attested in both lists, 3) the order of listing is not the same, and 4) the amount of bronze distributed is different.

To the recording of the smiths of *e-ni-pa-te-u* follows, after a *vacat*, a second list of five individuals who receive varying amounts of bronze in the usual structure "anthroponym + AES" (Jn 725.14-16). None of them is otherwise attested in the Jn series.

Lines 18-22 and 23-25 contain two recordings structured like the first, i.e. list of names followed by the total bronze distributed. The second relates to four smiths of *a-ke-re-wa*, not otherwise attested, receiving a total of M 12 bronze, i.e. M 3 per head, like those of *e-ni-pa-te-we* (ll. 1-10). The first, however, is in erasure and regards eight smiths of *na-i-se-wi-jo*, attested also on Jn 692, a tablet attributed to the same scribe (H2 S310). The lists inscribed on the two tablets, however, do not exhibit the same order of listing and, on Jn 692, *ta-ra-si-ja e-ko-te* and *a-ta-ra-si-jo* are visible, while on Jn 725. [[18-22]] all the smiths are *ta-ra-si-ja e-ko-te*. With regard to the amounts, on Jn 692, the two *ta-ra-si-ja e-ko-te* receive M 6 each, namely M 12 in total, while on Jn 725.21-22 the scribe marked two different totals: M 12 and M 30. It's not easy to understand the interrelation between the two totals. I think we have two options: a) two smiths received M 6 (compare with Jn 692) and six smiths M 3. The scribe would have marked first the result derived from summing 6 + 6, 12, then calculated 6 x 3, 18, without writing the result, and finally added the two totals: 12 M + 18 M, 30 M; b) all smiths received the same quantity of bronze, attested in other tablets of the series, namely M 1 N 2 (12 : 8). AES M 30 would be the sum of M 12 and the quantities recorded in the previous lines 14-16, the sum of which is currently 17, but an additional unit can be integrated at line 15.<sup>35</sup> The latter option seems the most convincing. In any case, despite the similarities with Jn 692, Jn 725. [[18-20]] is not the summary, but records a previous or subsequent delivery of bronze to the same persons.

Considering that we are dealing with ephemeral records, found randomly in relation to their original quality and quantity, it is absolutely acceptable to think of very frequent allocations of small quantities of bronze, more easily manageable and transportable. Moreover, it is plausible that single disbursements of large amounts of bronze were avoided because the recipient might steal the bronze and disappear. The frequency of distributions is suggested by the fact that only in the surviving Jn tablets up to a maximum of three deliveries are documented in favour of the same smith.<sup>36</sup>

The fact that the same smiths received bronze in several occasions invalidates, however, the estimated number of smiths made by J. Killen dividing the total bronze recorded on Ja 749, i.e. L 34 M 26 (= 1,092 kg), by the average share *pro-capite* of 3,5 kg, resulting in ca. 312 smiths.<sup>37</sup> Consequently, if Ja 749 records the total bronze delivered to the smiths in an administrative cycle (one year or even less),<sup>38</sup> that is an indicator not of the number of artisans employed in the *ta-ra-si-ja* system and, therefore, of their low social status, but of the significant economic implications of such production.

From the analysis proposed here it is thus clear that, in the context of metalworking, the *ta-ra-si-ja* involved groups of artisans who performed *corvées* at various locations and that, from time to time, the central authority supplied them with small quantities of bronze through the *basileis*.

<sup>34</sup> We are not counting *po-so-ra-ko* because this name is in erasure.

<sup>35</sup> Smith 1992-1993, p. 245, n. 229.

<sup>36</sup> See the cases of *a<sub>3</sub>-so-ni-jo* (Jn 310.3 and 706.11), *a-ti-pa-mo* (Jn 320.6 and 750.4), *e-do-mo-ne-u* (Jn 389.2 and 605.2), *e-u-po-ro-wo* (Jn 601.2 and 693.8), *te-u-to* (Jn 601.3 and 693.5), *mo-re-u* (Jn 389.6 and 750.10), *we-we-si-jo* (Jn 431.18, 658.2 and 725.3), *o-na-se-u* (Jn 601.6, 658.5 and 725.4).

<sup>37</sup> Killen 2001, p. 173.

<sup>38</sup> See Hiller 1988, p. 53: "we cannot be sure for which part of the administrative year and for how many months texts have been preserved".

Completely different is the situation of the weavers. The hypothesis that they also performed *corvées*<sup>39</sup> has already been ruled out with extensive arguments in favour of the more plausible interpretation as dependent personnel of low social status, perhaps slaves, retained by the Palace and employed in the *ta-ra-si-ja* production, with a single annual allocation of wool.<sup>40</sup>

The low social status and the dependence from the central authority are confirmed both by the documents of Pylos and those of Knossos: they are always recorded in groups, especially through ethnics, with two types of *supervisors*, *DA* and *TA*; about 30% of *ta-ra-si-ja* textile production is associated with “collectors”;<sup>41</sup> the weavers and their children receive a regular supply of rations, documented by many tablets.

On the contrary, the texts dealing with the sustenance and remuneration of skilled craftsmen are few and do not attest to a standard system of rations similar to that of the women. Only the allocations of wheat (*HORD*) made for the benefit of some workers (20 masons and 5 sawyers), on PY Fn 7, were perhaps intended as monthly rations, comparable to those of women in the *Ab* series,<sup>42</sup> and only three *a-ro-po*, interpretable as gr. \*ἀλοιφοί ‘anointers’ (?), are included in a registration of employees, who were likely sustained with food rations (PY An 199.2). All other evidence in our possession seems to suggest that, for their work, artisans received payments in kind or plots of land.<sup>43</sup> These two options are not closely related to the type of work performed: on Fg 374, an *a-re-pa-zo-o* ‘unguent-boiler’ receives a payment in kind (barley and figs), while another is recorded on PY Ea 773, 812 and 820 as a holder of land.<sup>44</sup>

The difference in the treatment of the weavers and specialized craftsmen is certainly an indicator of a different social status, but, in my opinion, it does not depend on the different type of production, *ta-ra-si-ja* vs. non-*ta-ra-si-ja*. The different social status seems rather related to job and gender. So the workers (as masons, laborers and weavers) would have enjoyed a lower socio-economic status than that of craftsmen (such as smiths and perfumers), as well as, in general, women vs. men.<sup>45</sup> The textual evidence suggests that gender functioned as a central organizational category,<sup>46</sup> and it is logical that there was both a social and an economic distinction between specialized craftsmen, who did not receive food rations, and non specialized workers, male and female dependent personnel and/or slaves, who received rations.<sup>47</sup> All craft sectors (weaving, metallurgy, perfumery, etc.) involved the work of unskilled labour alongside the skilled one, regardless of how they were administered and the control exercised by the central authority. Unlike the weavers, who were helped by their children (maintained by the Palace like their mothers), both smiths and perfumers could be assisted by workers who depended directly from them.

In the Near East, the social status of skilled artisans was free, as dependent personnel of the Palace or the Temple. The use of slaves in skilled crafts is rare: the exception are the weavers from the third millennium who were mostly slaves, men and women.<sup>48</sup>

In the classical and late Greek sources, starting from Plato,<sup>49</sup> the word *ταλασία* means ‘wool-spinning’ always with the sense of domestic labour peculiar of women. Moreover, in the *φιλάλαι ἐξελευθερικαί* (Athenian inscriptions of the second half of the 4th century B.C. related to the

<sup>39</sup> Uchitel 1984, pp. 276-282.

<sup>40</sup> Killen 2001, p. 172; Killen 2006, pp. 88-94; Nosch 2006, pp. 172-173.

<sup>41</sup> Nosch 2006, p. 169.

<sup>42</sup> Melena 1996-1997, pp. 171-176.

<sup>43</sup> Gregersen 1997.

<sup>44</sup> See the survey on the evidence concerning perfume-makers in Linear B texts in VOUTSA 2001, pp. 149-150 and in HILLER 2004, 391-392.

<sup>45</sup> See Killen 2006, pp. 95-98, for the greater autonomy of specialized craftsmen.

<sup>46</sup> For the reflections on the different social status and the division of labour and responsibilities between men and women in the Mycenaean period, see Uchitel 1984, pp. 264-273; Nordquist 1997, in particular for the weavers and smiths pp. 534-536, and Olsen 2009, with references.

<sup>47</sup> For reflections on the division of responsibilities between skilled and unskilled workers employed in the perfume industry of Pylos, see Jasink 1990-1991, pp. 220-222. Generally on dependent personnel in Linear B texts, see Hiller 1988.

<sup>48</sup> Zaccagnini 1983, p. 245.

<sup>49</sup> Pl. *Lg.* VII, 805e.

<sup>50</sup> Wrenhaven 2009, with references. The author suggests a connection between wool-working and prostitution: the *ταλασιουργοί* would have kept busy working wool when not entertaining clients. Just to accept the challenge, the pattern might be consistent also with the weavers recorded in Linear B tablets on the basis of 1) the lack of fathers in the records dealing with the maintenance of weavers and their children, and 2) the small amount of work carried out by each weaver.

manumission of slaves) the female ‘wool-workers’ named *ταλασιουργοί* were slaves.<sup>50</sup>

In contrast to the geographical and administrative centralization of the perfume industry,<sup>51</sup> a characteristic peculiar to the *ta-ra-si-ja*, common to both smiths and weavers, is working in their own home. From the Pylos tablets we know that smiths resided in villages scattered throughout the kingdom, while the majority of the women lived not far from the Palace, with 3 or 4 groups located in other districts and possibly with a decentralized administration for the rations at *re-u-ko-to-ro*.<sup>52</sup>

We said above that only a part of the metal production fell within the *ta-ra-si-ja*. The same happened also in the sphere of the textile production. Wool cloths *TELA+PU* and *TELA+KU* do not seem to be part of the *ta-ra-si-ja* production and the analysis of the set Lc(1) shows that the obligation to produce textiles for the Palace was not imposed on all locations in central Crete, but was restricted to only about half of the localities recorded with flocks of sheep.<sup>53</sup> The *ta-ra-si-ja* does not affect the processing of flax. In fact, no issues of raw materials or deliveries of finished products obtained from them are known. However, to such production are tied quantities of *SA* and *RI*, respectively raw fiber of flax and linen thread that the central authority secured through taxation, likely to supply to the weavers of linen (*ri-ne-ja*) and their children. Therefore, linen industry was performed by working groups of similar composition to those of wool-spinning and weaving, sustained by the ration system of barley and figs, but it did not employ *ta-ra-si-ja*.<sup>54</sup> Moreover, the linen cloth \*146 was collected through taxation (see in particular series PY Ma and KN Nc) and purchase (see in particular PY Un 1322). It was probably a very simple fabric, produced by unskilled and perhaps independent weavers, who lived and worked in various districts, while the garments produced in the workshops managed by the central administration would have been more refined and elaborate.<sup>55</sup>

As for the only possible attestation of the term *ta-ra-si-ja* in the woodworking, KN So (2) 4442.b, it refers to a pair of chariot wheels which the locality of *se-to-i-ja* owed from the previous year. Again, the term would indicate a slight *corvée*, imposed on workers who did not live in the palatial centre. It is conceivable that other documents in the same series refer implicitly to the production of wooden wheels according to *ta-ra-si-ja*, but surely not all were part of it, because KN So(1) 4430 records chariot wheels relevant to *o-pa* (autonomous work to be performed for the Palace).<sup>56</sup> Thus, it is plausible that the only record that contains the term *ta-ra-si-ja* relates to the production of bronze wheels (as on KN So 894.2) or of bronze parts of wheels.<sup>57</sup> In the series Sa of Pylos, we constantly find the formula “masculine personal name in the genitive + *wo-ka* + *we-je-ke-e* + *ROTA+TE ZE 1-2*”. If we interpret the term *wo-ka* as \**ῥοργά* ‘work, task’ (but equally plausible is the interpretation \**ῥογά* ‘chariot’),<sup>58</sup> it would not be a case of deliveries, but rather of assessment records of the wheels that workers (personal names in the genitive) were required to produce for the Palace. The number of wheels associated with each worker is usually low (two or four), perhaps because it refers to the wheels that were in production at the Palace at that time.<sup>59</sup> In the series So of Knossos it is specified which wheels had been already delivered (*de-do-me-na*) and which ones were still in production (*wo-zo-me-na*).

#### 4. CONCLUSIONS: PECULIAR CHARACTERISTICS OF THE TA-RA-SI-JA AND SOCIAL STATUS OF SMITHS AND WEAVERS

- 1) In Mycenaean times, the word *ta-ra-si-ja* related to wool-working and bronze-working, because wool and bronze were materials subject to weight control *par excellence*;
- 2) *ta-ra-si-ja* work was carried out in peripheral areas as regards the Palace;
- 3) only a part of the textiles and metal objects whose production and/or providing were

<sup>51</sup> The centralization of the perfume industry does not exclude the supply from surrounding areas of containers and spices (Palmer 1999, pp. 469-480 e 2003, pp. 127-128 and 135).

<sup>52</sup> Cf. Nosch 2006, pp. 174-175; Speciale 2001, pp. 150-151.

<sup>54</sup> For linen working see Rougemont 2007.

<sup>55</sup> Killen 1985, pp. 60-63; Killen 2008b, pp. 431, 433-434, 442-443. In addition to fiscal and payments records, the garment \*146 appears also in religious offerings.

<sup>56</sup> Sacconi 2008.

<sup>57</sup> Nosch 2006, p. 172.

<sup>58</sup> *DMic. II s.v.*

<sup>59</sup> Bernabé-Luján 2008, p. 210.

<sup>53</sup> Nosch 2006, pp. 171 and 174.

managed by the central administration was a result of the *ta-ra-si-ja*;

4) social status and number of people involved in textile production and metalworking were proportional to the value of the raw materials they worked: since flax and wool were more common and less valuable materials than bronze, the workforce involved in their manufacture was larger and more humble; weavers were low social-level workers, totally dependent on the Palace and worked at home; instead, smiths were autonomous and medium social-level craftsmen, obliged to provide regular *corvée* working at the place of residence;

5) the *ta-ra-si-ja* involved an extensive production system: on the whole, such a system had a high economic level, comparable to that of perfumed oil production, but relied on a much larger and decentralized staff.

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#### ABSTRACT

This paper reviews Linear B texts concerning wool and bronze industry related to *ta-ra-si-ja* and compares them with those concerning the perfume industry, with the aim of outlining the peculiarities of the Mycenaean *ta-ra-si-ja* and the social status of smiths and weavers.

For contextual and etymological reasons it is argued that the term *ta-ra-si-ja* /*tala(n)siā*/ indicates a production directly organized by the central administration for the supply of a certain quantity of wool and bronze weighed to be processed into finished products which would then be returned to the Palace. The central administration also ran an important production of perfumes, which provided for the supply of raw materials to the craftsmen, but the term *ta-ra-si-ja* never appears in these records, in my opinion simply because such raw materials, i.e. olive oil and spices, were not weighed, but measured.

The weavers were low-social-level workers, totally dependent on the Palace, which worked at home. Instead, the smiths were autonomous and medium-social-level craftsmen, obliged to provide regular *corvée* working at the place of residence. Moreover, the *ta-ra-si-ja* system had a high economic range comparable to that of perfumed oil production, but shared among a much larger and decentralized staff, which was supplied regularly with low quantities of raw materials. Thus, the main characteristics of the *ta-ra-si-ja* work were: 1) the weight control of the materials, 2) that it was a home work, but centrally managed, and 3) the extensive system of production.